

PROJECT FACT SHEET

CONTRACT TITLE: Dynamic Enhanced Recovery Technologies -- Class 1

ID NUMBER: DE-FC22-93BC14961

B & R CODE: AC1010000

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PROJECT SITE

CITY: Offshore Federal Waters **STATE:** LA

CITY: **STATE:**

CITY: **STATE:**

CONTRACT PERFORMANCE PERIOD:

07/15/1993 to 04/30/1996

PROGRAM: Field Demonstration

RESEARCH AREA: Class 1

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	9,730	9,775	19,505
FISCAL YR 1996	0	0	0
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	9,730	9,775	19,505

OBJECTIVE: This project will test the concept that the growth faults in a Gulf of Mexico field are conduits through which the producing reservoirs are charged and that enhanced production can be developed by producing from the fault zone. The field demonstration will be accomplished by drilling and production testing of growth fault systems associated with the Eugene Island Block 330 operated by Pennzoil in Federal waters off Louisiana.

METRICS/PERFORMANCE:

Products developed: ACCESS.BASIN basin modeling program has been released commercially. 4-D Seismic Analysis Software (with time as the fourth dimension) was developed as products of this project.

PROJECT DESCRIPTION:

Background: The Eugene Island Block 330 field covers portions of 7 blocks near the southern edge of the Louisiana Outer Continental Shelf in water depths of 210 to 266 ft. The field consists of two rollover anticlines, bounded to the north and east by a large arcuate, down to the basin growth fault system. More than 25 Pleistocene sandstones are productive at depths of 4,300 to 12,000 ft. Faulting and permeability barriers separate these sands into more than 100 oil and gas reservoirs. Previous work, which incorporated pressure, temperature, fluid flow, heat flow, and seismic, production, and well log data, indicated active fluid flow along fault zones.

The EI 330 Field is ideally suited for this study because it represents a discrete subbasin in which fluid flow has unquestionably occurred very recently in geological terms, thus providing a strong temperature and pressure signal. Hydrocarbon production there is from thermally immature sediments as young as 400,000 years BP, but the oils are from a source that is at least Cretaceous in age. Thus, recent mitigation and trapping must have occurred in these reservoirs.

Work to be performed: Columbia University's Lamont-Doherty Geological Observatory and other universities of the Global Basins Research Network will perform a field demonstration of the "Dynamic Enhanced Oil Recovery Technology." They will test the concept that the growth faults in the Eugene Island Block 330 field are conduits through which the producing reservoirs are charged and that enhanced production can be developed by producing directly from the fault zone.

The field demonstration will be accomplished by drilling and production testing the growth fault system associated with Eugene Island Block 330. The project utilizes advanced 3-D seismic analysis, geochemical studies, structural and stratigraphic reservoir characterization, reservoir simulation, and computer visualization systems.

PROJECT STATUS:

Current Work: Project completed.

Scheduled Milestones:

Drill well to test fault zone fluid flow	12/93
Complete analysis of 3-D seismic	06/95
Complete stratigraphic reservoir characterization	09/95
Complete geochemical studies	09/95
Complete modeling and visualization system	09/95

Accomplishments: Pathfinder well was drilled into a major growth fault bounding Eugene Island 330 reservoirs. Over 350 ft of core was retrieved from the fault zone. Fluid samples were also obtained. Production could not be established in the fault zone because fracture permeability closed with production. Success in coring that introduced new technology and success in predicting the location of oil flow has promoted other fault zone tests by industry. Real-time visualization database is online and accessible by project partners. Research results have been presented to industry partners through semiannual meetings and publications, and hands-on exhibits have been presented at national technical society meetings.